

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Bailey et al. Art Unit : 1722
Serial No. : 10/747,737 Examiner : Emmanuel S. Luk
Filed : 12-29-03 Confirmation No.: 2048
Title: A DEVICE FOR HOLDING A TEMPLATE FOR USE IN IMPRINT
LITHOGRAPHY

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

I. **REAL PARTY-IN-INTEREST**

The real party in interest is The Board of Regents, The University of Texas System, who is the assignee of the entire right and interest in the present Application.

II. **RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences known to Appellants, the Appellants' legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. **STATUS OF CLAIMS**

Claims 1-18 are pending in the Application.

Claims 1-18 stand rejected.

IV. **STATUS OF AMENDMENTS**

There were no amendments to the claims or Specification filed after the Final Rejection.

V. SUMMARY OF THE INVENTION

Figure 22 illustrates a system 100 that enables precise control of a template 150. [0517]. In one embodiment, template 5102 may be held in place using a separated, fixed supporting plate 5101 that is transparent to the curing agent as depicted in Figure 51. [0158]. Figure 46 also shows the template 150 being held by the body of the device. Additionally, Figures 49A-50C illustrate a nanolithography imprint process. The independent claims recite a device for holding a nanolithography template used for imprinting a nanolithography pattern on a substrate, where the device includes a body to receive the template and position it for imprinting, and a supporting plate to support a force of the imprinting on the template, where the supporting plate is transparent to a curing agent. Claim 14 further recites a vacuum system to apply a vacuum between the supporting plate and the body. This is also described in paragraph [0158].

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Claims 1-2, 4-6, 8, 10-12, 14-15 and 17 stand rejected under 35 U.S.C. §103 as being unpatentable over *Su* (U.S. Patent No. 5,632,936) in view of *Whitesides* (U.S. Patent No. 6,180,239).

2. Claims 3, 9 and 16 stand rejected under 35 U.S.C. §103 as being unpatentable over *Su* in view of *Whitesides* and further in view of *Chou* (U.S. Patent No. 6,482,742).

3. Claims 7, 13 and 18 stand rejected under 35 U.S.C. §103 as being unpatentable over *Su* in view of *Whitesides* and further in view of *Rogers* (U.S. Patent No. 6,753,131).

VII. ARGUMENTS

1. Claims 1-2, 4-6, 8, 10-12, 14-15 and 17 are not properly rejected under 35 U.S.C. §103 as being unpatentable over *Su* in view of *Whitesides*.

Su pertains to non-analogous art, and specifically is related to an injection molding process for creating contact lenses for users to wear in their eyes. This has nothing to do with nanolithography imprinting. With respect to *Whitesides*, the Examiner is citing to Figures 11a-11f asserting that *Whitesides* teaches the template 78 that is mounted on a support 80. However, this has nothing to do with nanolithography imprinting. The template 78 is for a commercial diffraction grading and is pressed into a liquid metal to form an optical surface. Column 17, lines 51-67. This also has nothing to do with nanoimprint lithography.

Further, for a claim to be obvious, there must be objective evidence supporting a motivation to combine the references. The only motivation provided by the Examiner for combining *Su* and *Whitesides* is the Examiner's unsupported subjective opinion on page 3 of the Office Action. Such an unsupported subjective opinion is insufficient to support a combination of references for an obviousness rejection.

So, Applicants respectfully assert that the Examiner has failed to prove a *prima facie* case of obviousness in rejecting the claims, since neither of the prior art references teaches or discloses the claimed limitations, and the motivation to combine the references is unsupported. Furthermore, the *Su* reference is completely irrelevant and non-analogous to the nanolithography imprint process specifically recited within the claims. Moreover, when attempting to solve the problems the inventors were working on at the time the invention was conceived, the inventors would not have looked to a disclosure about the manufacturing of contact lenses to solve the problems associated with the nanolithography technology they were working on.

2. Claims 3, 9 and 16 are not properly rejected under 35 U.S.C. §103 as being unpatentable over *Su* in view of *Whitesides* and further in view of *Chou*. Applicants respectfully assert that the reasons given above in paragraph 1 also apply to traverse this rejection.

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3. Claims 7, 13 and 18 stand rejected under 35 U.S.C. §103 as being unpatentable over *Su* in view of *Whitesides* and further in view of *Rogers*. For the same reasons as given above with respect to paragraph 1, these rejections are also traversed.

Please apply the brief fee of \$250 and any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,



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CLAIMS APPENDIX

1. A device for holding a nanolithography template used for imprinting a nanolithography pattern on a substrate, said device comprising:
 - a body having an opening to receive said nanolithography template, said body for positioning said template relative to said substrate for imprinting said nanolithography pattern on said substrate; and
 - a supporting plate coupled to said body and positioned relative to said nanolithography template to support a force of said imprinting on said nanolithography template, with said supporting plate being substantially transparent to a curing agent.
2. The device as recited in claim 1 wherein said curing agent comprises ultraviolet radiation.
3. The device as recited in claim 1 wherein said supporting plate is formed from material selected from a set of materials consisting of quartz, sapphire, and silicon dioxide.
4. The device as recited in claim 1 further including a vacuum system in fluid communication with said supporting plate to apply a vacuum to said nanolithography template.
5. The device as recited in claim 1 further including a vacuum system in fluid communication with said supporting plate to apply a vacuum between said supporting plate and said body.
6. The device as recited in claim 1 wherein said supporting plate is configured to reduce deformation of said nanolithography template due to forces present during an imprint lithography process.
7. The device as recited in claim 1 further including a reflective element connected to a portion of said body located within said opening.

8. A device for holding a nanolithography template used for imprinting a nanolithography pattern on a substrate, said device comprising:

a body having an opening to receive said nanolithography template, said body for positioning said template relative to said substrate for imprinting said nanolithography pattern on said substrate; and

a supporting plate coupled to said body and positioned relative to said nanolithography template to support a force of said imprinting on said nanolithography template, with said supporting plate substantially transparent to ultraviolet radiation.

9. The device as recited in claim 8 wherein said supporting plate is formed from material selected from a set of materials consisting of quartz, sapphire, and silicon dioxide.

10. The device as recited in claim 8 further including a vacuum system in fluid communication with said supporting plate to apply a vacuum to said nanolithography template.

11. The device as recited in claim 8 further including a vacuum system in fluid communication with said supporting plate to apply a vacuum between said supporting plate and said body.

12. The device as recited in claim 8 wherein said supporting plate is configured to reduce deformation of said nanolithography template due to forces present during an imprint lithography process.

13. The device as recited in claim 8 further including a reflective element connected to a portion of said body located within said opening.

14. A device for holding a nanolithography template used for imprinting a nanolithography pattern on a substrate, said device comprising:

a body having an opening to receive said nanolithography template, said body for positioning said template relative to said substrate for imprinting said nanolithography pattern on said substrate;

a supporting plate coupled to said body and positioned relative to said nanolithography template to support a force of said imprinting on said nanolithography template, with said supporting plate substantially transparent to a curing agent; and

a vacuum system in fluid communication with said supporting plate to apply a vacuum between said supporting plate and said body.

15. The device as recited in claim 14 wherein said curing agent comprises ultraviolet radiation.

16. The device as recited in claim 14 wherein said supporting plate is formed from material selected from a set of materials consisting of quartz, sapphire, and silicon dioxide.

17. The device as recited in claim 14 wherein said supporting plate is configured to reduce deformation of said nanolithography template due to forces present during an imprint lithography process.

18. The device as recited in claim 14 further including a reflective element connected to a portion of said body located within said opening.

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EVIDENCE APPENDIX

No evidence was submitted pursuant to §§1.130, 1.131, or 1.132 of 37 C.F.R. or of any other evidence entered by the Examiner and relied upon by Appellants in the Appeal.

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RELATED PROCEEDINGS APPENDIX

There are no related proceedings to the current proceeding.